Supreme Court, U.S.
FILED
JUN - 8 2016
OFFICE OF THE CLERK

No. 15-777

IN THE

Supreme Court of the United States

SAMSUNG ELECTRONICS CO., LTD., et al.,
Petitioners,

v.

APPLE INC.,
Respondent.

On Writ of Certiorari
to the United States Court of Appeals
for the Federal Circuit

BRIEF OF *AMICI CURIAE* ENGINE ADVOCACY AND SHAPEWAYS, INC. IN SUPPORT OF PETITIONERS

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INTEREST OF *AMICI CURIAE*

Amicus curiae Engine Advocacy ("Engine") supports the growth of technology entrepreneurship through economic research, policy analysis, and advocacy on local and national issues.[1] Engine works with the White House, Congress, federal agencies, state and local governments, and international advocacy organizations to educate and inform them of issues vital to fostering technological innovation.

Amicus curiae Shapeways, Inc. ("Shapeways") is a 3D printing marketplace and service company. It has printed and sold millions of 3D-printed objects through its platform.

Engine and Shapeways submit this brief to highlight the importance of a proper interpretation of the design patent damages statute to the vigorous innovation, by startups and established firms alike, that is crucial to the American economy, and to the continued vitality of the dynamic and highly innovative 3D printing industry. *Amici* seek to bring to the Court's attention relevant perspectives on the impact of this case that will not be fully presented by the parties.

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[1] The parties have consented to the filing of this brief; their written consents are on file with the Clerk. No counsel for a party authored this brief in whole or in part, and no party or counsel for a party made a monetary contribution intended to fund its preparation or submission. No person other than the *amici* or their counsel made a monetary contribution to the preparation or submission of this brief.

SUMMARY OF THE ARGUMENT

The "total profits" design patent damages rule adopted by the Federal Circuit is inconsistent with the law of patent damages and wholly out of touch with the reality of modern product design. It will lead to dire consequences for innovators, startups, and investors. The rule would award a patentee all profits from any product that infringes a design patent, regardless of how small and unimportant the patented feature was to the value of the overall product. But the Constitution, long-standing legal principles, and common sense dictate that patent damages—whether they are design or utility patents—be apportioned based on the value actually contributed by the patented feature.

Allowing this "all-profits" rule to prevail would disrupt the balance of the patent system, stifling innovation and diminishing investment in the startups that drive much of the U.S.'s economic growth. Innovators, entrepreneurs and venture capitalists will avoid the complex, multi-component products that exemplify so much of innovation today, fearing that a single, inadvertently infringed design patent will erase all of the value created by a product comprised of many design and technology elements. Large and small innovators alike will face an increasing number of threats or lawsuits based on design patents. The risk of an all-profits award will force many to settle those suits for amounts far in excess of the actual value of the patented design at issue. If the history of utility patents is any guide, a new class of "design patent trolls" will arise to take advantage of the windfalls offered by this rule, adding an additional chill to the valuable innovation

of startups and established companies alike and a loss of the consumer and economic benefits they otherwise would bring.

The Federal Circuit's all-profits rule is legally untenable and economically dangerous; the Court should reverse the decision below and interpret 35 U.S.C. § 289 to limit the award of profits to those attributable to the patented design.

ARGUMENT

I. Awarding a Patentee the Defendant's Total Profits Ignores the Limitations Set out by § 289 and Mistakes the Role of Design Patents in the Modern World

Using apportionment principles to limit damages awards is necessary to advance the goal of the patent system to "promote the Progress of Science and the useful Arts." U.S. Const. art. I, § 8, cl. 8. The Federal Circuit's interpretation below undermines this goal and reads 35 U.S.C. § 289 to provide for awards so far in excess of the value contributed by the patent that progress and innovation will be chilled instead of promoted.

Contrary to the goals of the patent system, the Federal Circuit's interpretation will significantly undermine innovation, particularly in the multi-component products that modern society takes for granted as a part of everyday life. If left unchecked, it will encourage design "patent trolling" activities similar to the utility patent trolling that result in a wasteful tax on innovation. Investors will be more reluctant to invest in complex, multicomponent products and innovation in those areas will be reduced. Even those innovators who are still willing

to pursue complex products and able to secure funding will constantly be at risk of losing their entire profits in design patent litigation initiated either by a patent troll or a competitor for infringement of a single, nonfunctional feature of a complex product.

Instead, § 289 should be interpreted in a manner consistent with its legislative history and with the overarching goals of the patent system such that it incentivizes innovation and creativity. As other *amici* likely will explain in detail, the language of § 289 can and should be construed to incorporate an apportionment principle, which would advance, rather than undermine, those goals.

As Petitioner explains, apportionment is a longstanding cornerstone of intellectual property law. *See* Pet. Br. 38. This Court noted in 1853 in *Seymour v. McCormick* that "it is a very grave error to instruct a jury that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine." 57 U.S. 480, 491 (1853). *See also Young v. Grand Rapids Refrigerator Co.*, 268 F 966, 973 (6th Cir. 1920) (awarding plaintiff the statutory minimum $250 for defendant's infringement of a design patent for refrigerator door latch when "any segregation of the profits due to the use of this particular design of latch casing [wa]s obviously impossible"). The same grave error has surfaced again in the Federal Circuit's interpretation of § 289, which compels even an innocent infringer to relinquish, to each patentee who comes knocking with a patent on a single, nonfunctional design feature, his total profits from his *entire* product.

Moreover, the legislative history of § 289 supports interpreting the statute to incorporate an apportionment limitation. Although § 289's predecessor, the Act of 1887, 24 Stat. 387, made an infringer's entire profits available for design patent infringement, this reward was conditional on the infringer's "knowing that the [patented design] had been so applied" to the infringer's product. *Id.* Legislative history and the longstanding apportionment principles discussed above suggest that Congress was comfortable imposing harsh damages awards because the knowledge requirement restricted the remedy's imposition to willful infringers. 18 Cong. Rec. 836 (1887) ("no man will suffer either penalty or damage unless he willfully appropriates the property of another."). When passing the 1887 Act, Congress thus recognized that the Act would impose a punitive remedy unless it included a knowledge requirement. The Federal Circuit's current interpretation of § 289 now imposes such a punitive remedy, however, unduly burdening innovation and reducing public access to advanced technology.

When Congress removed the knowledge requirement from § 289 in 1952 and made design patent infringement a strict liability offense, it also added language providing that a patentee "shall not twice recover the profit made from the infringement." 35 U.S.C. § 289, 66 Stat. 813 (1952). If this language did not function to limit damages through an apportionment principle, it would endorse nearly limitless damages awards and create double liability problems.

The wording of § 289 is thus better read to support an interpretation incorporating an apportionment requirement that will adhere to the goals of the patent system and promote innovation and progress. For example, "from the infringement" should be read to limit damages to that portion of the profits actually attributable to the infringing feature. Moreover, as other *amici* have noted, this Court could interpret "article of manufacture" to limit damages to the smallest saleable unit of the infringing product in order to promote the goals of the patent system. Both of these interpretations are consistent with the limitation that the patentee "shall not twice recover the profit made from the infringement," and both would avoid the nonsensical results that flow from awarding *all* profits.

Additionally, the Federal Circuit's interpretation fails to comport with principles of statutory construction that caution against construing statutes in a way that renders language superfluous. An infringer's liability for its "total profit" as provided by § 289 logically must refer to the profit specifically gained from the infringing product, not simply to an equivalent amount of money. Thus, an infringer can only receive and possess a single profit for each product, and cannot part with that profit more than once. Assume a firm sells a widget at a total profit of $1 million. If a patentee successfully sues the firm for infringing five of its design patents in that widget, there still would be only the single, $1 million "total profit" for the patentee to recover for all five infringements, even though that amount of "total profit" could have been recovered for any one of those infringements.

Thus, by reading § 289 to award total profits for infringement of any design patent and failing to read "profit made from the infringement" to limit the award of profits to profits attributable to the specific patented design, the Federal Circuit has rendered "shall not twice recover" superfluous. There would be no need for this limiting language because there would be only one total profit for the patentee to recover in the first place and no opportunity for double recovery.

Furthermore, it is only by ignoring that most modern products are complex, multicomponent creations covered by multiple patents that the Federal Circuit is able to avoid entangling itself in the double liability implications of its interpretation of § 289. Under the Federal Circuit's construction, a defendant whose product infringes design patents held by two or more patentees would face a dilemma if ordered to pay his entire profit to each one. As noted above, once the defendant has paid the first patentee its total profits, any sum paid to the second patentee is no longer the infringer's profit, but rather an additional but equal expense that must be paid with some other source of money.

As a result, a court assessing design patent damage awards to multiple patentees on the same product would have to choose among several illogical options: 1) order the infringer to pay each of the subsequent patentees the same "total profits" sum it paid the first patentee, 2) award the second patentee nothing since the "total profits" had already been paid, or 3) direct the subsequent patentees to seek their recovery from the first patentee who has already been awarded the infringer's entire profit.

These nonsensical options would be the direct result of the Federal Circuit's isolated reading of one phrase in the first paragraph of § 289 and its disregard of the statute's goals and context and the textual arguments for apportionment. *See* Pet. App. 28a.

As described below, the Federal Circuit's interpretation produces not only absurd results, but damaging ones that will chill innovation and investment. To avoid this outcome, this Court should interpret § 289 to limit a patentee's recovery to profits attributable to the infringed design itself.

II. The Federal Circuit's Misguided Interpretation of § 289, Awarding A Patentee All Profits from an Infringing Product, Will Harm Innovation and Disrupt the Balance of the Patent System

In recent years, seeking appropriate balance in the patent system to ensure it serves its purpose of promoting the progress of science and the useful arts has become a national priority because of the profound effects the system has on innovation and, in turn, on the economy as a whole. *See, e.g.*, Executive Office of the President, *Patent Assertion and U.S. Innovation* 12 (June 2013) (quoting President Barack Obama), https://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf. The Federal Circuit's misguided interpretation of § 289 will upset these careful attempts at balance and chill innovation, resulting in adverse effects on innovators large and small.

The Federal Circuit's rule awards all profits from an infringing product to the holder of a design patent, regardless of how significant or insignificant the patented feature is or how much or little it

contributes to the overall value of that product. But in the modern world, where most products are complex enough to embrace multiple technological and design features, one or a few design features rarely serve as dominant selling points of a product that might justify the award of all profits. For example, in this case Apple's own study showed that only 1% of iPhone users reported they purchased their phone because of its design and color. J.A. 505. And only 5% of respondents to a J.D. Power study identified visual appeal as one of the phone purchasing decision factors. J.A. 438. The all-profits rule is fundamentally—and unjustifiably—at odds with the apportionment principles that apply to utility patent damages.

The rule announced by the opinion below will chill innovation by allowing design patent holders to credibly threaten crippling, disproportionately large damages, thereby increasing the risks posed by litigation and the overall costs of litigation (since there will be more of it). This in turn will discourage entrepreneurship, reduce investment in startups, and deter competition among established players in a similar fashion to, but much more significant degree than utility patents. *Compare* Catherine E. Tucker, *The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity*, (2014), http://cdn.arstechnica.net/wp-content/uploads/2014/06/Tucker-Report-5.16.14.pdf.

Ultimately, the Federal Circuit's interpretation of § 289 creates a significant risk of transforming design patents from innovation incentives into yet more lucrative weapons for "patent trolls." In the utility patent context, trolls are now widely seen as

exploiting flaws in the patent system for their own monetary benefit, and their abusive litigation and threats of litigation stifle innovation. The Federal Circuit's all-profits damages rule will create new and powerful incentives for abusive design patent assertion by trolls and reduce valuable and productive innovation and business creation.

A. An All-Profits Rule Will Impose Barriers to Entry on Startups, Stifling New Innovation

Startups are an integral driver of invention, innovation and economic growth throughout the nation. *See generally* Ian Hathaway, *Tech Starts: High-Technology Business Formation and Job Creation in the United States, Kauffman Foundation Research Series: Firm Formation and Economic Growth* (2013), http://www.kauffman.org/~/media/kauffman_org/research%20reports%20and%20covers/2013/08/bdstechstartsreport.pdf. They have been "disproportionately responsible for disruptive innovations that have driven productive growth—telephone, computers, software, autos, airplanes, air conditioning, [and] internet search." See Steve Matthews, *American Economy Hamstrung by Vanishing Startups, Innovation*, Bloomberg (June 1, 2016) (quoting Robert Litan, adjunct senior fellow, Council on Foreign Relations). Startups were "a major source of innovation and productivity growth for the economy as a whole in the 1980s and 1990s." *Id.* (quoting John Haltiwanger, University of Maryland & NBER, and Steven Davis, University of Chicago). Additionally, startups heavily influence labor productivity, GDP, and job creation. *Id.* (quoting Mark Zandi, Chief Economist, Moody's Analytics, Inc.).

Recently, however, startups have increasingly been confronted by barriers both to entry and to success, and their numbers have declined. Fifty-nine percent of U.S. counties suffered a decline in new business formation and only 20 counties generated half of new businesses from 2010 to 2014. Economic Innovation Group, *The New Map of Economic Growth and Recovery* 4-5 (2016), http://eig.org/wp-content/uploads/2016/05/recoverygrowthreport.pdf. These trends are likely be exacerbated by the Federal Circuit's reading of § 289, which imposes additional, significant barriers to creating and sustaining startups.

Litigation Threats and Costs. Startups are particularly vulnerable to the total profits design patent damages rule. A startup found to be infringing a design patent, no matter how small a part the infringement plays in the startup's product, will be forced to relinquish its entire profits. The business may well fail as a result. Yet the prospect of total profits awards will incentivize patentees to assert design patents, and those patentees will have enormous leverage over startups and small innovators. Because litigation can be ruinously expensive, a single design patent lawsuit could bankrupt a new startup with a business model geared (as most are, at least initially) toward developing a single product or service. Even startups that settle will pay settlement costs disproportionate to the actual infringement, inflated by the risk of the startup relinquishing its entire profits as damages if it elects to proceed to trial on the merits.

Many startups simply do not have enough financial resources to deal with a lengthy legal battle

and often find themselves forced to settle even in cases where the asserted patent is "weak" and could be invalidated. If found to be infringing multiple design patents asserted by different owners, a startup might be subject to multiple awards of total profits. It is unlikely that a startup would be capable of satisfying any additional total profits judgment, as the first award will by definition exhaust all of its profits from the product at issue.

Such a drastic increase in litigation risks will discourage investor interest in already cash-strapped startups. Demand letters threatening design patent litigation will chill entry or development by startups or exclude them from certain already-occupied product markets, permitting established players to avoid competition beyond the true scope of their patents.

Avoiding Crowded Markets. The total profits award will also compound the effects of patent thickets, or "overlapping set[s] of patent rights" that require companies seeking to commercialize new technology to obtain licenses from multiple patentees. *See* Carl Shapiro, *Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting*, *in* 1 INNOVATION POLICY AND THE ECONOMY 119-150, 119 (Adam B. Jaffe et al., eds., 2001), http://faculty.haas.berkeley.edu/shapiro/thicket.pdf. Relatedly, patent "hold-up," the risk that pending or undiscovered patents will be asserted after an infringing product has already been designed and introduced to the market, when it is too late to design around them, will increase the risks of and disincentives to innovating in markets with large webs of patent rights. *See id.* at 125.

For instance, a single Samsung smartphone may encompass as many as 250,000 patents, including design patents. David Drummond, *When Patents Attack Android*, Google Official Blog (Aug. 3, 2011), http://googleblog.blogspot.com/2011/08/when-patents-attack-android.html. With so many patents embodied by a single product, even established players with significant patent portfolios stand vulnerable to patent disputes. The patent thicket and hold-up issues, especially prominent in the areas of electronics and telecommunications with large numbers of utility patents, already have increased barriers to entry for startups and others considering creating products that compete with established companies' offerings.

Under the Federal Circuit's interpretation of § 289, which disproportionately values damages for infringement of design patents over utility patents, design patents likely will become essential to many companies' patent portfolios and will be asserted at least as prominently as utility patents, even in industries where design is of minimal relevance. Faced with a multitude of design patents, each carrying the potential for devastating damages awards, and with limited resources to negotiate licenses with patentees, startups will face increased difficulty in manufacturing and selling products in already-occupied markets. Since the design patent infringement standard employs an "ordinary observer" test, and the total profits rule awards the patentee an infringer's entire profits, new market entrants (and especially startups with limited capital) will be deterred from innovating in already-occupied market sectors, even when the market

demonstrates a need and a demand for such innovation.

Investment. Moreover, the Federal Circuit's interpretation of § 289 will stifle innovation by decreasing investment, often stopping startups before they can start. Early stage startups rely heavily on venture capital investment to commercialize their products and survive. Robin Feldman, *Patent Demands & Startup Companies: The View from the Venture Capital Community*, 16 Yale J.L. & Tech. 236, 254-55 (2014). Involvement in potential patent litigation—especially when the damages award divests a startup of its entire profits if it is found liable as an infringer—increases investment risk. Increased risk chills investment in such early stage companies. *Id.* at 268-69. In turn, the cost of launching a company increases, because decreased investment interest and funding forces innovators to bear more of the early-stage costs themselves or expend more of their already limited resources seeking funding. Increasing costs to launch companies reduces the number of startups innovating in the market. This, ultimately, results in fewer technological advances passed on to the general public. Economic Innovation Group, *The New Map of Economic Growth and Recovery* 2 (2016), http://eig.org/wp-content/uploads/2016/05/recoverygrowthreport.pdf.

Harm to consumers. Ultimately, consumers bear the costs of decreased innovative activity by startups. When startups are precluded from entering the market, established players develop and retain increased market share. Increased market dominance leaves established players little incentive to innovate

or improve their products—and least of all to engage in disruptive innovation beneficial to consumers and responsive to their needs.

B. An All-Profits Rule Will Stifle Innovation in User-Generated Products

The effects of the Federal Circuit's interpretation of § 289 have even greater implications for industries driven by user-generated products—including the computer numerical control routing, laser cutting, and the rapidly expanding 3D printing industries. Mass access to these technologies has and will continue to democratize innovation and production, allowing increasing numbers of amateur and semiprofessional innovators to make and sell physical items on a large scale.

Considerable evidence suggests that user innovation often complements and stimulates existing producers and industries. *See* Eric von Hippel, DEMOCRATIZING INNOVATION 107-09 (MIT Press 2005) (describing how user innovation complements large manufacturer innovation); Joachim Henkel & Eric A. von Hippel, *Welfare Implications of User Innovation*, MIT Sloan Working Paper No. 4327-03 at 3 (June 2003) ("User innovation thus helps to reduce information asymmetries and increase efficiency of the innovation process."). Democratizing innovation benefits the nation's economy by reducing production costs and benefits society by increasing access to advanced technologies. *See* Henkel & von Hippel, *supra*, at 19 ("[T]he introduction of a user innovation can have an offsetting effect to the tendency of manufacturers to underprovide product diversity to a marketplace.").

The Federal Circuit's all-profits rule will incentivize patentees to assert their design patents against a greatly expanded number of innovators, including legally unsophisticated entrepreneurs who will be especially vulnerable to the chilling effects of design patent litigation. Although the amount of money extracted from each small-scale infringer is likely to be small, the number of potential defendants may be great. This makes it both profitable and appealing to sue legally less-sophisticated parties or "downstream manufacturers" who have inadvertently incorporated an infringing off-the-shelf component into their product. *See* William F. Lee & A. Douglas Melamed, *Breaking the Vicious Cycle of Patent Damages*, 101 Cornell L. Rev. 385, 466 n.201 (2016); Executive Office of the President, *Patent Assertion and U.S. Innovation* 10 (June 2013), https://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf.

3D Printing. One of the most significant technologies being used for innovation by numerous established companies, startups, and individual users is 3D printing. 3D printing transforms digital design files into physical objects. A user first designs an object on a computer by using the same design programs that an architect or an engineer might use or by scanning a preexisting object with a 3D scanner. The resulting digital file is then sent to a 3D printer which creates the object in physical space. The printer achieves this through an additive manufacturing process, precisely adding layer upon layer of material until an object is created to the design's specifications. As with traditional 2D

printers, users can simultaneously and identically create physical things worldwide.

In recent years, access to and use of 3D printing has increased dramatically, driven in part by the expiration of foundational patents and the creation of online hubs for 3D printers and 3D printable objects. By 2020, the global 3D printing industry is projected to grow to between $7 billion and $21 billion. Louis Columbus, 2015 *Roundup of 3D Printing Market Forecasts and Estimates, 2014*, Forbes.com (Mar 21, 2015), http://www.forbes.com/sites/louiscolumbus/2015/03/31/2015-roundup-of-3d-printing-market-forecasts-and-estimates/. As increased use has reduced the cost of 3D printing, the number of people designing and creating 3D printable objects has exploded, further driving down costs.

Established companies and startups alike have turned to 3D printing to manufacture their products. These businesses value 3D printing over traditional manufacturing because it is cost effective, permitting experimentation and rapid testing of prototypes, alternative designs, and improvements. Neal Katyal, *Disruptive Technologies and the Law,* 102 Geo. L.J. 1685, 1687 (2014). The 3D printing process allows objects to be created "on demand" and offers unique advantages to traditional manufacturing in the types of physical shapes that can be produced, accessibility to the public, ease of customization, and low object creation startup costs.

Some of the objects offered for sale are printed through third party platforms, such as Shapeways, while others are printed using a personal, at-home 3D printer. *See* Davis Doherty, *Downloading Infringement: Patent Law as a Roadblock to the 3D*

Printing Revolution, 26 Harv J.L. & Tech. 353, 357 (2012). On Shapeways' platform alone, hundreds of thousands of individuals have used 3D printing to create millions of objects for their own enjoyment, use, and sale. Shapeways, *Funding The Rise of Creative Commerce* (June 19, 2012), http://www.shapeways.com/blog/archives/1442-Funding-the-Rise-of-Creative-Commerce.html.

3D printing allows users to work with a variety of materials, including precious metals, ceramics, and plastics, to create an incredibly diverse set of objects. These include everyday objects, such as jewelry, tools, lawn mowers, shower heads, and myriad others. In the medical field, 3D printers have been used to create medical drugs, fabricated human skin, and a titanium pelvis. Ben Farmer, *Surgeon creates pelvis using 3D printer,* The Telegraph (Feb. 10, 2014), *available at* http://www.telegraph.co.uk/news/health/10627556/Surgeon-creates-pelvis-using-3D-printer.html. Users can create objects—often heavily customized—that were previously prohibitively expensive or unobtainable.

Ultimately, using digital technologies to make physical objects greatly increases the types of physical objects that people can create while simultaneously vastly increasing the number of people who can create them. The increasing accessibility to 3D printing encourages more people to share, distribute, and sell their physical creations to a global audience via the internet, at the same time encouraging them to incorporate others' publicly-available designs into their own, more complex products.

As a result, the number of potential "innocent infringers" who participate in the market without having extensively researched existing design patents or even developed a deep awareness of what else is in the market will likely increase significantly. 3D printing—and digital manufacturing more generally—will shift many design patent disputes from the boardroom to the start-up innovator's proverbial garage. Inventors, small entrepreneurs, and average citizens are typically not legally sophisticated and often cannot afford robust legal guidance. While such innovators have long sold products in relevant marketplaces, increased access to 3D printing and other technologies will enable them to market much larger quantities of products to a broader audience of consumers, increasing their likelihood of attracting the attention of design patentees seeking to enforce their patents and acquire innovators' profits.

Applying apportionment principles to design patent damages will not change whether and when small innovators are liable for infringement. But it will reduce the disproportionately heavy damages now available in design patent cases, particularly where the infringing component is but one feature of a complex, multi-component, functional product, mitigating the unduly harsh impact on the unknowing infringer. Leaving the Federal Circuit's rule in place will result in a substantial chill on invention and entrepreneurship and a loss of the benefits of democratized innovation, which include more and better products, decreased production costs and increased access to technology. If the total profits rule prevails, these innovators will increasingly be

the targets of extortionate design patent threats and lawsuits by newly incentivized design patent trolls, and innovation will suffer.

C. An All-Profits Rule Will Thwart Valuable Competition and Further Hamper Innovation

The case before the Court demonstrates that the impact of the draconian damages rule announced by the Federal Circuit's is not limited to small players; it will be felt strongly by larger, established market participants as well. Such firms also contribute significantly to innovation, investing billions of dollars annually on research and development for complex technological products and their components. Many established companies aggressively invest in innovation for new or existing technologies to effectively compete with one another in the market. Consumers are the ultimate beneficiaries of competitor innovation, as they receive more advanced technology at more competitive prices. The patent system should incentivize established entities to innovate and compete against one another. But the Federal Circuit's reading of § 289 limits the incentives for even established companies to innovate and undermines the fundamental goals of the patent system.

With incumbent firms as well as startups, the negative impact on innovation involving complex, multicomponent products will be especially pronounced. The value of such products often stems from hundreds or thousands of technologies and design features, not one or a few design elements. But the total-profits interpretation of § 289 puts

firms at risk of losing everything, from every feature and capability, if they infringe even a single, insignificant patented design element. This untenable result is even harder to justify when an established manufacturer innocently infringes a design patent through its independent inventive efforts, and is subject to the total profits remedy.

Rather than being incentivized to innovate, companies will be intimidated by § 289 and choose to be conservative in designing and developing their products. Innovation is considerably less appealing for companies when the whole of their profits are at risk.

Even where companies decide to continue some (probably more limited) investment in research and development, increased litigation costs will deplete their resources available for innovation. The total profits damages rule will increase the incentives for design patentees to demand greater damages or higher settlements than ever before, as the ultimate risk to the accused infringer and the accompanying settlement pressure is so high. With higher figures in risk considerations, companies will be forced to allocate more resources to litigation costs, which "necessarily come out of R&D budgets." James Bessen, *The Evidence Is in: Patent Trolls Do Hurt Innovation*, Harvard Business Review (Nov. 2014), *available at* https://hbr.org/2014/07/the-evidence-is-in-patent-trolls-do-hurt-innovation.

The combined effects of these changed incentives will be to lessen legitimate competition among established entities. Companies often compete against one another in the same marketplace with similar products. That competition gives consumers a

larger and richer array of choices for their purchase decisions. To win consumers' favor, companies innovate to introduce new technologies or enhance existing technologies. Competition drives innovation.

The Federal Circuit's total profits damages rule, on the other hand, reduces incentives to innovate—opportunities to win consumers' favor and increase product sales may now be outweighed by the financial risks of innovating under the threat of losing total profits. Rather than competing with one another and risking total profit divestment, competitors will be encouraged to shift innovation into empty or uncrowded markets, resulting in reduced competition and innovation in markets that have been "claimed." Companies will be incentivized to delve into horizontal innovation at the expense of vertical or incremental innovation when all types of innovation are crucial for advancement in technologies and for consumers. This will inevitably retard the introduction of advanced technologies to the public and limit consumer choice in the marketplace.

D. An All-Profits Rule Will Exacerbate Already Prevalent Patent Trolling Problems

This Court has already recognized that the activities of "patent trolls" "impose a harmful tax on innovation." *Commil USA, LLC v. Cisco Systems, Inc.*, 135 S. Ct. 1920, 1930 (2015). Congress and the President also have acknowledged the taxing effect of patent trolls on innovation in the passage and signing of the America Invents Act. *See, e.g.*, Executive Office of the President, *Patent Assertion and U.S. Innovation* 2 (June 2013) (quoting President

Barack Obama), https://www.whitehouse.gov/sites/default/files/docs/patent_report.pdf. The Inter Partes Review process, along with other proceedings at the Patent Trial Appeals Board of the United States Patent and Trademark Office, were created in part to curb the ever increasing activities of the trolls. Despite those efforts, data show that patent trolls still exert undue control over innovation through active and abusive litigation campaigns. According to a forthcoming report, licensing firms that acquire their patents from third parties went from being accountable for less than 5% of patent suits to around 30% between 2000 and 2014. Lemley et al., *Stanford NPE Litigation Dataset Preliminary Results and Policy Implications: Investigating Options and Outcomes* 2 (forthcoming working paper). The Federal Circuit's interpretation of § 289 will only make that trend worse. The total profits damage award rule will generate greater incentives than ever for trolls to threaten and bring lawsuits and seek to extract extortionate settlements from innovators. Such actions and settlements reduce rather than encourage innovation.

Design patents are becoming more prevalent. In 2015, 39,097 design patent applications were filed, an all-time high and a 10.5% increase from 2014 (35,378). U.S. Patent and Trademark Office, *U.S. Patent Statistics Chart Calendar Years 1963–2015*, http://www.uspto.gov/web/offices/ac/ido/oeip/taf/us_stat.htm (last visited June 7, 2016). With more applications, more design patents were granted. 25,986 design patents were granted in 2015, a record high and a 9.8% increase from 2014 (23,657). *Id.*

Design patents are appealing to applicants because they are easier, quicker, and less expensive to obtain than utility patents. Grant rates for design patents are much higher than for utility patents (86% allowance rate for design patents in 2016, compared to 49.5% allowance rate for utility, plant, and reissue patents, including Request for Continued Examination applications, in 2016). *Compare* U.S. Patent and Trademark Office, *Patents Dashboard: Design*, http://www.uspto.gov/corda/dashboards/patents/main.dashxml?CTNAVID=1006 (last visited June 7, 2016) with U.S. Patent and Trademark Office, *Patents Dashboard: Production, Backlog and Filings*, http://www.uspto.gov/corda/dashboards/patents/main.dashxml?CTNAVID=1005 (last visited June 7, 2016).

The outsized incentives for patentees created by the Federal Circuit's total-profits rule will likely accelerate these trends. With total-profits damage awards available, patent trolls will now have far greater incentives to leverage design patents for extortionate purposes. Even with damages apportioned to actual infringement in the utility patent context, patent trolls have profited and thrived on asserting such patents. The incentives to capitalize on the Federal Circuit's design-patent damages rule will be substantial. In fact, Samsung appears already to have received at least one demand letter with threats based on pending—not granted—design patent applications and explicitly relying on the decision below in this case. *See* Trolling Effects, *Demand Letter from Intellectual Capital Consulting, LTD to Samsung Telecommunications America, LLC* (June 2, 2015), https://trollingeffects.org/demand/

intellectual-capital-consulting-ltd-2015-06-02. The Federal Circuit's rule will only result in an increase in design patent litigation and crippling damage awards.

Startups are particularly vulnerable to patent trolls' abusive design patent assertions. To date, most of the targets of utility patents trolls have been startups. From 2006 to 2012, companies with less than $100 million annual revenue represented at least 66% of unique defendants to patent troll lawsuits, and at least 55% of unique defendants in those lawsuits made $10 million per year or less. Colleen Chien, *Startups and Patent* Trolls, 17 Stan. Tech. L. Rev. 461, 464 (2014). A large percentage of startups (40%) that received demand letters from patent trolls reported a "significant operational impact," ranging from delayed achievement of another milestone to shutting down a business line or the entire business. *Id.* at 465. Some start-ups even reported abandoning the U.S. market in favor of other nations. *See* James Bessen, LEARNING BY DOING: THE REAL CONNECTION BETWEEN INNOVATION, WAGES, AND WEALTH 195 (2015). But for patent trolls' abusive litigation, venture capital investment in startups would have likely been $21.772 billion higher from 2009 to 2014. Catherine E. Tucker, *The Effect of Patent Litigation and Patent Assertion Entities on Entrepreneurial Activity* 36, (2014), http://cdn.arstechnica.net/wp-content/uploads/2014/06/Tucker-Report-5.16.14.pdf.

With the possibility of gaining a target's total profits when a design patent is asserted, patent trolls will have a greatly increased incentive to use design patents against startups and extract larger-than-ever

settlements. The result will be fewer and less creative innovators and fewer startups taking fewer risks, ultimately to the detriment of consumers and the economy.

CONCLUSION

For the foregoing reasons, this Court should reverse the Federal Circuit's decision interpreting § 289 and limit the award of profits to those attributable to the patented design.

Respectfully submitted,

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June 8, 2016